

### **REMARKS**

The present amendments and remarks are in response to the Office Action of December 15, 2006. Claims 1, 2, and 4-26 are currently pending.

Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, the Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the Office Action, the following rejections were issued:

- (1) Claims 1-2 and 4-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Application No. 2004/0145088 (hereinafter "Patel"), in view of U.S. Patent No. 6,328,408 (hereinafter "Gelbart"), U.S. Patent No. 6,536,889 (hereinafter "Biegelsen"), or U.S. Patent No. 6,132,021 (hereinafter "Smith").
- (2) Claims 20-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith, each in further view of U.S. Patent No. 6,375,874 (hereinafter "Russell").

#### **Rejections under 35 U.S.C. 103(a)**

Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing the prior art reference, or references combined, teach or suggest all the claim limitation in the instant application. Further, the Examiner has to establish some motivation or suggestion to combine and/or modify the references, where the motivation must arise from the references themselves, or the knowledge generally available to one of ordinary skill in the art. The Applicant respectfully submits that the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in this rejection.

Rejections over Patel in view of Gelbart, Biegelsen or Smith

Claims 1, 2 and 4-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith. Patel discloses a process for forming a three-dimensional article. The three-dimensional article is produced by depositing a layer of a first material over the surface of a build platform within an enclosure (Paragraphs 0061 and 0063). A second material in the form of a liquid reagent is jetted onto the layer of the first material, such that the second material reacts with the first layer to form a cured lamina. These steps are repeated until a three-dimensional article is built-up of cured layers (Paragraph 0009).

As in previous office actions, the Applicant asserted, and the Examiner appeared to concur, that Patel does not teach the use of an interleaving process for building the three dimensional objects as required by currently pending claims 1 and 13. As a reminder, the interleaving process of Applicant's invention for producing solid three dimensional objects involves "gaps in coverage produced by the first ink-jettable composition remaining open to be filled by the second ink-jettable composition." However, it should be noted that this interleaving is not just two-dimensional (X and Y axis), but rather, provides interleaving in three dimensions (along a Z-axis) as well. Language to clarify this point has been amended into each of the independent claims. One example of the process is set forth in Figures 2A and 2B, which supports these amendments, along with the discussion of interleaving as described in the previous office action response.

The Examiner contends that any one of Gelbart, Biegelsen or Smith can be combined with Patel to make free form fabrications of solid three-dimensional objects as taught by Applicant. The Examiner asserts that it would be obvious to one of ordinary skill in the art at the time of applicant's invention to employ an interleaving process in the methods of Patel for the advantages of improving the quality of the ink-jet product formed.

The Applicant respectfully submits that the Examiner has not established a proper motivation or suggestion to combine and/or modify the references, and further, there is a missing element in the combination proposed by the Examiner. The Gelbart, Biegelsen and Smith references all relate to ink-jet printing generally, which is a substantially two-dimensional process. Further, all three references disclose the use of processes which are similar to interleaving in a two-dimensional plane. Such

processes are typical for color blending and printing of images generally. However, one of ordinary skill would not be motivated to combine any one of these references with the teachings in Patel having a reasonable expectation of successfully developing a free-form fabrication of solid three-dimensional objects. Gelbart, Biegelsen and Smith do not disclose the fabrication of three-dimensional objects. As Examiner correctly pointed out, each reference is concerned with improving two dimensional ink-jet printing in the areas of "resolution, the use of plurality of substances, multicolorant recording and underprinting color." The interleaving process in two dimensional printing is primarily for the purpose of color blending.

Conversely, the interleaving process is employed in three dimensional printing not only for the purpose of printing in the X and Y (two dimensional) plane, but just as importantly, in the Z (three dimensional) direction as well. In other words, interleaving is employed so as to improve contact between the reactive build material and the curing agent both horizontally and vertically (See Figures 2A and 2B), where the two drawings viewed together clearly show that different types of materials are often printed on top of one another. This is neither taught nor fairly suggested by any of the references cited by the Examiner. One of ordinary skill would not be motivated to combine the color blending process found in typical two dimensional printing, as disclosed in Gelbart, Biegelsen and Smith, with the process of forming a three dimensional article as taught by Patel, and more importantly, the interleaving of the presently claimed invention relates to three-dimensional interleaving, which provides a missing element of any of the combinations proposed by the Examiner. Therefore, the presently pending claims are not obvious over the prior art. In light of the above arguments, it is respectfully requested that the rejection be withdrawn and the claims be allowed.

Rejections over Patel in view of Gelbart, Biegelsen or Smith, each in further view of Russell

Claims 20-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Gelbart, Biegelsen or Smith, each in further view of Russell. Because claims 20 and 21 depend from claim 13, it is assumed that these claims will be allowable along with claim 13 as discussed above. Additionally, because claim 22 employs a three-dimensional interleaving process in its formation, and claims 23-26

depend from claim 22, the same relevant arguments as outlined above apply.

Therefore, Applicant asserts that these claims are also in condition for allowance and respectfully requests that the rejection be withdrawn and the claims be allowed.

**CONCLUSION**

In view of the foregoing, Applicant believes that claims 1, 2 and 4-26 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone W. Bradley Haymond (Registration No. 35,186) at (541) 715-0159 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025

Dated this 14<sup>th</sup> day of March, 2007.

Respectfully submitted,



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